CLAIMS

1   1.   A method of searching for a character pattern within a data stream comprising:

2   computing a checksum for said character pattern;

3   computing another checksum for a predetermined portion of said data stream; and

4   comparing said another checksum to said checksum to determine if there is a match.

1   2.   The method according to Claim 1 further comprising shifting said portion of said data

2   stream into a shift register.

1   3.   The method according to Claim 1 further comprising:

2   shifting more data from said data stream into said shift register if said comparison
     does not result in a match; and

3   recomputing said another checksum by removing an oldest unit of data from said

4   another checksum recomputation and adding said more data to said recomputation.

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1   4.   The method according to Claim 3 further comprising:

2   continuing said shifting and said recomputing until said comparison results in a

3   match.

1   5.   The method according to Claim 1 further comprising:

2   shifting multiple portions of said data stream into said shift register.

1   6.   The method according to Claim 5 further comprising computing a plurality of another

2   checksums based upon different parts of said multiple portions of said data stream.

1   7.   The method according to Claim 6 wherein said character pattern includes a plurality

2   of character patterns and said checksum comprises a plurality of checksums;

3   said method further comprising simultaneously comparing said plurality of another

4   checksums to at least two of said plurality of checksums to determine if there are any

5   matches.

8.   The method according to Claim 7 wherein at least two of said plurality of checksums

      have different lengths.

9.   The method according to Claim 1 wherein said character pattern includes a plurality

      of character patterns and said checksum comprises a plurality of checksums;

      said method further comprising simultaneously comparing said another checksum to

at least two of said plurality of checksums to determine if there are any matches.

1   10.   The method according to Claim 1 wherein said character pattern includes a plurality

2   of character patterns and said checksum comprises a plurality of checksums;

3   said method further comprising comparing said another checksum to one of said

4   plurality of checksums to determine if there is a match;

5   recomputing said another checksum based upon a longer portion of said data stream;

6   and

7   comparing said recomputed another checksum to at least another of said plurality of

8   checksums.

1   11.   The method according to Claim 1 wherein said potion of said data stream include a

2   byte of data.

1   12.   The method according to Claim 1 wherein said potion of said data stream include a

2   plurality of bytes of data.

1   13.   Apparatus that searches for a character pattern within a data stream comprising:

2   a register;

3   a processor for copying a predetermined portion of said data stream into said register;

4   a checksum generator configured to compute a checksum for said character pattern

5   and another checksum for said predetermined portion; and,

6   at least one comparator configured to compare said another checksum to said

7   checksum.

1   14.   The apparatus according to Claim 13 wherein said register further includes a plurality

2   of registers.

1   15.   The apparatus according to Claim 13 wherein said predetermined portion of said data

2   stream is a byte of data.

1   16.   The apparatus according to Claim 13 wherein said predetermined portion of said data

2   stream is a plurality of bytes of data.

1   17.   The apparatus according to Claim 13 wherein said checksum generator is configured

2   to respectively compute a plurality of checksums for a plurality of character patterns

3   and to compute another checksum for said predetermined portion; and,

4   wherein said at least one comparator includes a plurality of comparators each

5   configured to respectively compare said another checksum to different ones of said plurality of

6   checksums.

1   18.   The apparatus according to Claim 17 wherein at least two of said plurality of

2   checksums have different lengths.

1   19.   The apparatus according to Claim 17 wherein said checksum generator comprises a

2   plurality of checksum generators.

1   20.   The apparatus according to Claim 13 wherein said processor is configured to shift

2   more data from said data stream into said register if said comparator does not detect a

3   match; and,

4   said checksum generator is configured to recompute said another checksum by

5   removing an oldest unit of data from said another checksum recomputation and adding said

6   more data to said recomputation.

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1   21.   A method of searching for a character pattern within a data stream comprising:

2   computing a checksum for said character pattern; wherein said character pattern has a

3   length;

4   shifting a byte of data from said data stream into a register;

5   computing another checksum for said byte of said data stream;

6   continuing said shifting and computing of another checksum until a length of said

7   shifted bytes of data is equal to said length of said character pattern;

8   comparing said another checksum to said checksum to determine if a match exists;

9   shifting another byte of data from said data stream into said register if said

10   comparison does not result in a match; and

11   recomputing said another checksum by removing an oldest byte of data from said

12   another checksum recomputation and adding said another byte of data to said recomputation;

13   comparing said recomputed checksum to said checksum to determine if a match exist;

14   and,

15   continuing said shifting another byte, said recomputing, and said comparing until a

16   match exists.

1   22.   Apparatus that searches for a character pattern within a data stream comprising:

2   register means for temporarily storing a portion of said data stream;

3   processor means, electrically coupled to said register means, for copying said portion

4   of said data stream into said register means;

5   checksum generator means for computing a checksum for said character pattern and

6   for computing another checksum for said portion of said data stream; and,

7   comparison means coupled to said checksum generator means for comparing said

8   another checksum to said checksum to determine if a match exists.